

REMARKSRelated Applications

The Examiner's attention is directed to two related applications currently undergoing examination: U.S. Application No. 10/088,253, filed August 28, 2002, currently being examined in Art Unit 2832 by Examiner Easthom; and U.S. Application No. 10/701,992, filed November 4, 2003, which is a continuation of Application No. 09/395,869 (now U.S. Patent No. 6,640,420), currently assigned to Art Unit 3729 (Examiner not yet known).

Amendments

In the descriptive part of the specification, the status of several references has been updated. The title has been amended as suggested by the Examiner.

The Examiner has indicated that claims 2, 9, 10, 13, and 14 are allowable if rewritten in independent form including the limitations of the base claim and intervening claims. Therefore, claims 2, 9, and 13 have been rewritten in independent form, incorporating the subject matter of claim 1; claims 1 and 8; and claims 11 and 12, respectively. Claims 1, 11, and 12 have been canceled. Claims 3, 5, 7, and 8 have been amended to be dependent on claim 2. These amendments have been made in the interest of rapid prosecution and without prejudice to Applicants' right to prosecute claims of similar or different scope to the unamended claims in one or more continuation applications. Furthermore, these claims have been rewritten solely to define and recite the present invention in independent form; the amendments associated with these rewritten claims are not in any way related to the Examiner's rejection based on prior art nor any applied or cited prior art.

The Objection to the Drawings

Applicants respectfully traverse the objection to the drawings under 37 CFR § 1.83(a), insofar as the objection is applicable to the amended specification. The perspective view of Figure 28 does not allow elements 120 (a laminar metal foil layer) or 123 (solder pads) to be visible, although such elements are shown in Figure 26 (element 120) and Figures 27 and 29 (element 123) and reference to them in the description of Figure 28 is believed to provide useful information. Applicants believe that these structural details are shown in the drawings, and it is submitted that the drawings comply fully with 37 CFR § 1.83(a). Furthermore, Applicants contend that one skilled in the art would readily understand the meaning of each element.

The Rejection Under 35 USC § 103(a)

Applicants respectfully traverse the rejection of claims 1, 3-8, 11, and 12 under 35 USC § 103(a) as unpatentable over Barrett (U.S. Patent No. 6,172,591) in view of either Thomas et al. (U.S. patent No. 6,331,763) or Fahey et al. (U.S. Patent No. 4,780,598), insofar as the rejection is applicable to the amended claims. Applicants believe this rejection is rendered moot in view of the cancellation of claims 1, 11, and 12, and the amendment of claims 3 to 8 to make them dependent on an allowable claim.

Disclosure Under 37 CFR § 1.56

In fulfilling the duty of candor and good faith, the following documents are hereby disclosed to the Patent Office in accordance with 37 CFR § 1.56. It is not admitted that the information in the listed documents is material to patentability as defined in 37 CFR § 1.56(b). The Examiner is requested to consider the documents in the examination of this application.

Accompanying this statement is a Form PTO-1449 in duplicate on which the documents are listed. The Examiner is requested to return an initialed and signed copy of the form once the documents have been considered.

The following documents were cited by the European Patent Office in the International Search Report for International Application No. PCT/US02 39392, which is a counterpart for this application. Two were cited in category “X” as a “document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone”. The remaining document was cited in category “A” as a document “defining the general state of the art which is not considered to be of particular relevance”. A copy of the Search Report is attached.

## U.S. PATENT DOCUMENTS

<u>Document Number</u>	<u>Date</u>	<u>Name</u>	<u>Class</u>	<u>Subclass</u>
2002/0140540 A1*	10/2002	Chen et al.	338	22
2002/0130757 A1*	09/2002	Huang et al.	338	22
6,297,722 B1*	10/2001	Yeh	338	22 R

The following documents were cited during the prosecution of the parent application, Application No. 09/395,869 (now U.S. Patent No. 6,640,420). These documents include the

documents cited in the International Search Report for International Application No. PCT/US00/25118, which is the counterpart to Application No. 09/395,869, and is related to the present application.

## U.S. PATENT DOCUMENTS

<u>Document Number</u>	<u>Date</u>	<u>Name</u>	<u>Class</u>	<u>Subclass</u>
2,482,316	9/1949	Bocking	338	328
3,221,145	11/1965	Hager, Jr.	219	549
3,351,882	11/1967	Kohler et al.	338	322
3,435,399	3/1969	Gielisse et al.	338	22 R
3,497,859	2/1970	Bang	338	309
3,648,364	3/1972	Endo	29	620
3,775,725	11/1973	Endo	338	262
3,835,434	9/1974	Kahn	338	22 R
4,088,828	5/1978	Yamamoto et al.	174	68.5
4,200,970	5/1980	Schonberger	29	593
4,237,441	12/1980	Van Konynenburg et al.	338	22 R
4,238,812	12/1980	Middleman et al.	361	106
4,255,698	3/1981	Simon	320	35
4,272,471	6/1981	Walker	264	104
4,304,987	12/1981	Van Konynenburg	219	553
4,315,237	2/1982	Middleman et al.	338	22 R
4,317,027	2/1982	Middleman et al.	219	553
4,327,351	4/1982	Walker	338	22 R
4,330,703	5/1982	Horsma et al.	219	553
4,352,083	9/1982	Middleman et al.	338	23
4,371,860	2/1983	May et al.	338	21
4,388,607	6/1983	Toy et al.	338	22 SD
4,426,633	1/1984	Taylor	338	25
4,434,416	2/1984	Schonberger	338	22R
4,445,026	4/1984	Walker	219	553
4,463,407	7/1984	Berger et al.	361	306
4,475,138	10/1984	Middleman et al.	361	58
4,486,737	12/1984	Ott	338	22R
4,486,738	12/1984	Sadlo et al.	338	320
4,514,620	04/1985	Cheng et al.	219	553

4,529,960	7/1985	Uchida et al.	338	309
4,534,889	08/1985	Van Konynenburg et al.	252	511
4,545,926	10/1985	Fouts et al.	252	511
4,560,498	12/1985	Horsma et al.	252	511
4,591,700	5/1986	Sopory	219	505
4,593,181	6/1986	Jensen et al.	219	541
4,605,471	8/1986	Mitchell	156	645
4,660,017	4/1987	Momoki et al.	338	21
4,689,475	08/1987	Matthiesen	219	553
4,706,060	11/1987	May	338	20
4,714,910	12/1987	Schwingenschuh et al.	338	21
4,724,417	02/1988	Au et al.	338	22 R
4,757,298	7/1988	Nishikawa et al.	338	308
4,757,581	7/1988	Yamada et al.	29	25.35
4,774,024	09/1988	Deep et al.	252	511
4,777,718	10/1988	Henderson et al.	29	620
4,780,598	10/1988	Fahey et al.	219	511
4,786,888	11/1988	Yoneda et al.	338	22 R
4,788,523	11/1988	Robbins	338	309
4,800,253	01/1989	Kleiner et al.	219	553
4,801,784	1/1989	Jensen et al.	219	548
4,811,164	3/1989	Ling et al.	361	321
4,845,838	7/1989	Jacobs et al.	29	671
4,861,966	8/1989	Matthiesen et al.	219	205
4,873,508	10/1989	Ankenman et al.	338	25
4,876,439	10/1989	Nagahori	338	22 R
4,882,466	11/1989	Friel	219	219
4,904,850	2/1990	Claypool et al.	219	548
4,907,340	3/1990	Fang et al.	29	610.1
4,924,074	5/1990	Fang et al.	219	548
4,924,204	5/1990	Uchida	338	22R
4,924,205	5/1990	Caporali et al.	338	227
4,935,156	06/1990	Van Konynenburg et al.	219	553
4,937,551	6/1990	Plasko	338	22 R
4,959,505	9/1990	Ott	174	52.2
4,977,309	12/1990	Uchida	219	541

4,992,771	2/1991	Caporali et al.	338	22 R
4,993,142	2/1991	Burke et al.	29	621
5,015,824	5/1991	Monter et al.	219	219
5,017,243	5/1991	Otsubo	136	244
5,049,850	09/1991	Evans et al.	338	22 R
5,057,811	10/1991	Strott et al.	338	22R
5,085,364	2/1992	Ishikawa et al.	228	139
5,089,801	2/1992	Chan et al.	338	22 R
5,142,263	8/1992	Childers et al.	338	21
5,166,658	11/1992	Fang et al.	338	23
5,194,316	3/1993	Horner et al.	428	195
5,196,136	3/1993	Dishart et al.	252	170
5,210,516	5/1993	Shikama et al.	338	22 R
5,212,466	5/1993	Yamada et al.	338	22 R
5,216,404	6/1993	Nagai et al.	338	22 SD
5,228,188	7/1993	Badihi et al.	29	623
5,241,741	9/1993	Sugaya	29	612
5,247,277	9/1993	Fang et al.	338	22 R
5,258,738	11/1993	Schat	338	332
5,271,548	12/1993	Maiwald	228	175
5,280,263	1/1994	Sugaya	338	22 R
5,291,535	3/1994	Baker et al.	378	22
5,303,115	4/1994	Nayar et al.	361	106
5,347,258	9/1994	Howard et al.	338	333
5,351,390	10/1994	Yamada et al.	29	612
5,378,407	01/1995	Chandler et al.	252	513
5,382,938	1/1995	Hansson et al.	338	22R
5,451,919	09/1995	Chu et al.	338	22 R
5,451,921	9/1995	Crawford et al.	338	220
5,488,348	1/1996	Asida et al.	338	22R
5,582,770	12/1996	Chu et al.	252	511
5,747,147	05/1998	Wartenberg et al.	428	209
5,777,541	7/1998	Vekeman	338	22R
5,801,612	09/1998	Chandler et al.	338	22 R
5,818,676	10/1998	Gronowicz, Jr.	338	22R
5,831,510*	11/1998	Zhang et al.	338	22 R

5,852,397*	12/1998	Chan et al.	338	22 R
5,864,281	01/1999	Zhang et al.	338	22 R
5,907,271*	05/1999	Hirano	338	22 R
5,907,272*	05/1999	Mcguire	338	22 R
5,907,273	5/1999	Ross, Jr. et al.	338	313
6,020,808*	2/2000	Hogge	338	22 R
6,104,587	8/2000	Chu	361	106
6,130,597	10/2000	Toth et al.	338	22 R
6,172,591	01/2001	Barrett	338	22 R

## FOREIGN PATENT DOCUMENTS

Document number	Date	Country	Class	Sub-class	Translation enclosed (?)
EP 0223404	05/1987	Europe			
EP 0308306	03/1989	Europe			
EP 0398811	11/1990	Europe			
EP 0509582	10/1992	Europe			
EP 0649562	03/1998	Europe			
EP 0790625 A2	08/1987	Europe			
EP 0955643 A	11/1999	Europe			
DE 2816593	10/1979	Germany			
DE 3122612	12/1982	Germany			
DE 3839868	06/1989	Germany			
DE 3910861	11/1989	Germany			
DE 4000089	07/1990	Germany			
DE 8716103	03/1988	Germany			
1415454	11/1975	Great Britain			
WO 84/01259	03/1984	International			
WO 94/01876	01/1994	International			
WO 95/08176	03/1995	International			
WO 95/31816	11/1995	International			
WO 95/34084	12/1995	International			
WO 98/12715	03/1998	International			
WO 98/29879	07/1998	International			
WO 99/45551	09/1999	International			
49-28594	08/1974	Japan			

54-73260	06/1979	Japan			
56-150802	11/1981	Japan			
61-124104	06/1986	Japan			
63-216301	09/1988	Japan			
63-244702	10/1988	Japan			
5-29111	02/1993	Japan			
6-283301	10/1994	Japan			
4-150001	05/1992	Japan			Abstract

## OTHER DOCUMENTS

<u>Details of Document</u>
Coombs, <u>Printed Circuit Handbook</u> , 1996, p. 24.1 - 24.17, 40.1 - 40.4
Harper, <u>Electronic Packaging and Interconnection Handbook</u> (1991), p. 1.37 - 1.43, 8.3 - 8.5, 8.53 - 8.56, 9.1 - 9.16, 9.41 - 9.49.
Patent Abstracts of Japan, vol. 013, no. 198 (E-756), 11 May 1989 & JP 01-020601A (JCG Corp.), 24 January 1989, abstract.
"PolySwitch PTC Devices", Standard Product List, Raychem Corporation, May 1992.
"PolySwitch SMD Installation Guidelines" trade brochure, Raychem Corporation, Nov. 1992.
"PolySwitch SMD Surface Mount Devices PTC Overcurrent Protection" trade brochure, Raychem Corporation, Nov. 1992.
"Protection of Batteries with PolySwitch Devices", Raychem Corporation, Jan. 1987.
Search Report for International Application No. PCT/US93/06480, October 7, 1993.
Search Report for International Application No. PCT/US94/10137, November 23, 1994.
Search Report for International Application No. PCT/US95/05567, June 26, 1995.
Search Report for International Application No. PCT/US95/07420, September 4, 1995.
Standler, <u>Protection of Electronic Circuits from Overvoltages</u> , 1989, p. 133
U.S. Patent Application No. 07/893626 (Chandler et al.), filed June 5, 1992.
U.S. Patent Application No. 08/816,471 (Chandler et al., filed March 13, 1997); now U.S. 6,570,483.
U.S. Patent Application No. 09/060,278 (Chiang et al., filed April 14, 1998); now U.S. 6,606,023.
U.S. Patent Application No. 09/181,028 (Graves et al, filed October 27, 1998); now U.S. 6,651,315.
U.S. Patent Application No. 09/364,504 (Isozaki et al., filed July 30, 1999); now U.S. 6,358,438.

The following documents have been cited during the prosecution of Application No. 10/088,253, filed August 28, 2002, which is the U.S. national stage application of International Application No. PCT/US00/25118.

#### U.S. PATENT DOCUMENTS

<u>Document Number</u>	<u>Date</u>	<u>Name</u>	<u>Class</u>	<u>Subclass</u>
2002/0050914A1	05/2002	Chiang et al.	338	22 R
2001/0000658A1	05/2001	Barrett et al.	338	22 R
6,020,808	02/2000	Hogge	338	22 R
<del>6,172,591</del>	<del>01/2001</del>	<del>Barrett</del>	<del>338</del>	<del>22 R</del>
6,188,308	02/2001	Kojima et al.	338	22 R
6,429,533	08/2002	Li et al.	257	783

#### Copies of Documents

In accordance with 37 CFR §1.98(d), copies of the documents submitted by Applicants during the prosecution of the parent application (Application No. 09/395,869) are not being submitted. Copies of the documents cited by the Examiner during prosecution of that parent application, as well as documents cited for the first time in this Disclosure Statement, are being sent. These documents are identified on the above tables with an \*. All of these documents, except as identified below, are listed on the accompanying Form PTO-1449, and Applicants will readily supply copies if needed. Copies of the documents cited in the Office Action by the Examiner are not listed on the Form PTO-1449, and are crossed out on the above tables.

#### Fee

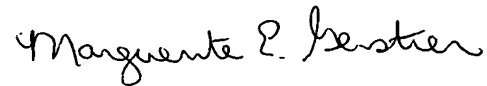
In accordance with 37 CFR § 1.97(c)(2), the Commissioner is authorized to charge the fee for submitting this Information Disclosure Statement (\$180) to Deposit Account No. 18-0560.



Conclusion

It is believed that this application is now in condition for allowance and such action at an early date is earnestly requested. If, however, there are any outstanding issues which can be usefully discussed by telephone, the Examiner is asked to call the undersigned.

Respectfully submitted,

A handwritten signature in cursive script, reading "Marguerite E. Gerstner".

Marguerite E. Gerstner  
Registration No. 32,695  
Telephone (650) 361-2483